

NOTES ON ANCIENT BRITISH MONUMENTS.¹

IV.—Avenues.

I HAVE measured several avenues since "Stonehenge" was published, and I have studied others of which the orientation could be determined by the Ordnance maps. Many of them have been found to have had the same astronomical use which had been suggested in those measured on Dartmoor. The longest avenue I have seen is at Avebury—the Kennet Avenue—which, in Stukeley's time, was more than a mile long. Associated with it is the Beckhampton Avenue. These avenues must have been very imposing parts of the complete temple when it was in full use. Avebury is such a mass of ruins that it is difficult to reconstruct it in the mind's eye in its entirety, but some parts of it, considered by themselves, present no difficulty. Mr. R. H. Caid, of Devizes, has twice enabled my wife and myself to visit the region by driving us from Devizes in his motor-car, and these visits gave us time enough to see that the Beckhampton Avenue and the remains of the Cove were both oriented to the May sunrise, were, in fact, probably closely associated in the May ceremonials, the avenue abutting on the north circle, in the centre of which the remaining gigantic stones of the cove still stand.

The theoretical conditions for the azimuth of the May sunrise at Avebury (lat. $51^{\circ} 30'$, variation $16^{\circ} 48'$ W. in 1906), are, with $2'$ of limb showing :

N. 62° E. with sea horizon
 $63^{\circ} 40'$ " hills 1° high
 $65^{\circ} 12'$ " " 2° ,

A rough measurement on the spot gave me N. 65° E. for the outlook of the cove, the horizon being about 2° high, and on the 1-inch Ordnance the line joining the two large monoliths at the west end of the Beckhampton Avenue and the cove gives N. 64° E. Further, this line studied on the 25-inch map passes close to the stones indicated by Stukeley, who expressly says that he saw the remains of the avenue. I give his description.²

"The Beckhampton Avenue goes out of Abury town at the west point, and proceeds by the south side of the churchyard. Two stones lie by the parsonage gate on the right hand. Those opposite to them, on the left hand, in a pasture, were taken away in 1702, as marked in the ground-plan of Abury. Reuben Horsal remembers three standing in the pasture. One now lies in the floor of the house in the churchyard. A little farther one lies at the corner of the next house on the right hand, by the lane turning off to the right to the bridge. Another was broke in pieces, to build that house with in 1714. Two more lie on the left hand opposite. It (*i.e.* the Avenue) then passes the beck south of the bridge. Most of the stones hereabouts have been made use of about the bridge, and the causeway leading to it."

Smith's account goes on :—

"Moreover, we have some evidence of the exist-

¹ Continued from p. 152.

² Avebury described, p. 34, quoted in Smith's "British and Roman Antiquities of North Wiltshire," p. 146.

ence of the avenue in this direction, in the fragments of sarsen stones which may still be seen there, as the Rev. Bryan King has pointed out in his note on this subject, to which I have already called attention; therein he says: 'Beginning with the walls of the churchyard and of the church, and of the manor-house, with its enclosures, in an entire length of full half-a-mile from the earthwork on the west side of Avebury to the corner of the large field in which the two large stones near Beckhampton now stand, there are very few lineal yards which are not occupied by causeway, walls or cottages, all formed of sarsen stone, sufficient and more than sufficient, to absorb all the stones of the Beckhampton Avenue': and then he goes on to enumerate the several stones, or portions of stones, which still exist, and which are apparently the remnants of those described by Stukeley."

On the accompanying plan of Avebury, photographed from the 25-inch Ordnance map, I have indicated the two circles as roughly determined from the

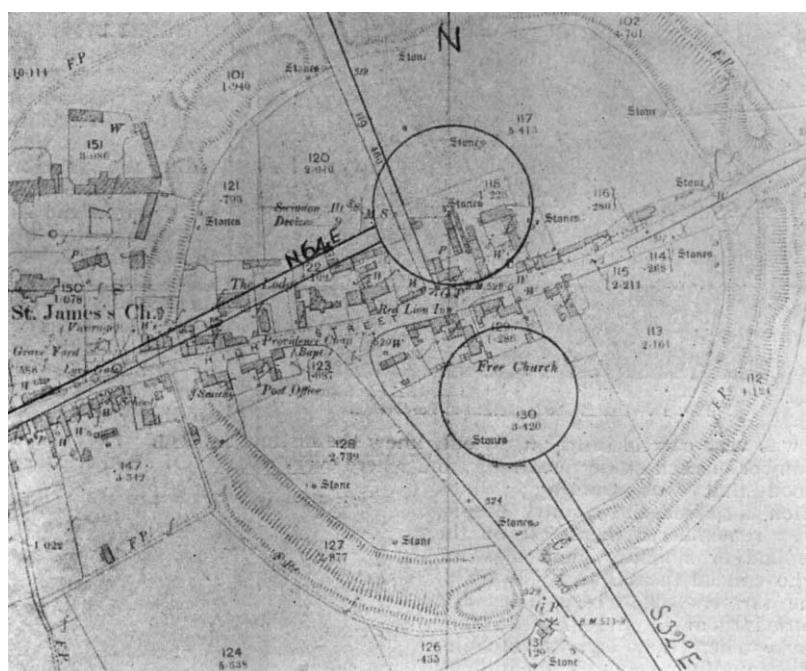


FIG. II.—Avebury, showing the circles and avenues.

remaining stones. It will be seen that the May-year avenue line is directed nearly, but not quite, to the centre of the northern circle, the cove occupying the centre itself, and so blocking the view from the avenue or processional road to the S.W.

I next come to the south-eastern or 'Kennet Avenue.' Stukeley² says of it: "The Kennet Avenue consisted originally of one hundred stones on each side, reaching from the vallum of Abury town to the circular work on Overton Hill. Mr. Smith, living here, informed me that when he was a schoolboy the Kennet Avenue was entire from end to end. The stones composing it were of all shapes, sizes, and heights that happened, altogether rude. Some we measured six feet thick, sixteen in circumference. If the stones were of a flattish make, the broadest dimension was set in the line of the avenue, and the most slightly side of the stone inward. The founders were

¹ *Wiltshire Magazine*, vol. xviii., pp. 377-383.

² Avebury described by Stukeley, quoted in "British and Roman Antiquities of North Wiltshire," p. 145.

sensible that all the effect desired in the case was their bulk and regular station. When I abode here for some time on purpose, for several summers together,



FIG. 12.—One of the Monoliths at Borobridge.

I was very careful in tracing it out, knew the distinct number of each stone remaining, and where every one stood that was wanting; which often surprised the country people, who remembered them left on the ground or standing, and told me who carried them away. Many of the farmers made deep holes and buried them in the ground; they knew where they lay. Lord Winchelsea with me counted the number of the stones left, 72, anno 1722. I laid it all down in the nature of a survey, on large imperial sheets of paper, and wrote a detail of every stone present or absent; but it would be very irksome to load the press with it." Mr. Long, after describing the war of extermination which had been waged against them, and how such stubborn blocks as refused to succumb to fire and hammer were buried in the pits dug for them, continues: "Two of them lie six feet underground in the premises of Mr. Butler of Kennet, and over another the Bath road passes. The work of destruction has been so successfully carried out that only nineteen stones or their stumps are now visible between West Kennet and Abury; four in the bank on the left-hand side of the road from Marlborough as it enters Kennet, and which can only be seen by going into the adjoining field: these stones lie about thirty paces apart, and

that these were the original, or nearly the original, distances, seems confirmed by Stukeley's twentieth plate."¹

As will be seen from the map, this avenue apparently was connected with the southern circle as the Beckhampton one was with the northern one. If this were so, certainly the enormous bank, erected apparently for spectacular purposes, which is such a striking feature of Avebury, was not made until after the Kennet Avenue had fallen out of any astronomical use.

The alignment of this avenue, as measured on the 25-inch map, is S. 32° E., the elevation of the horizon from the 1-inch map being $49'$. This gives a declination of $31^{\circ} 34'$ S. I shall return to this point later on.

This avenue seems to have struck another aligned from the circle on Overton Hill, which formerly was oriented to the May sunset or the November sunrise, to judge from the positions of the stones given in Smith's map.

At Borobridge, near Harrogate, is another avenue I have visited; only three stones remain, two have disappeared in recent times, the extreme stones being separated by about 700 feet. They are not in a line. Lukis was the first to suggest that they were the remains of an avenue, and I agree with him. According to my measurements the breadth of the avenue was about 25 feet. With a clinometer the mean of three readings gave N. 355° E. as the magnetic azimuth; taking the variation as 17° (October 4, 1907), this gives us S. 22° E. or N. 22° W.; the true northern horizon is $1\frac{1}{2}^{\circ}$ high, the southern one 1° .

I give a copy of a photograph of the central stone; this seems to have been squared, and the east and west sides are slightly slewed from the general line of direction.

Mr. Lewis,² in an interesting account of these stones, tells us that the most northerly stone is 18 feet high by $7\frac{1}{2}$ by $3\frac{1}{2}$ feet, the second (the one illustrated), $197\frac{1}{2}$ feet away, 22 feet high by $4\frac{1}{2}$ by $4\frac{1}{2}$ feet; and the southerly one, 362 feet away, 23 feet high by $4\frac{1}{2}$ by 4 feet. They are called locally the Devil's Arrows.

Of another Dartmoor avenue, that at Assacombe, in



FIG. 13.—Assacombe Avenue looking west.

the Chagford district, I am enabled, by the kindness of Mr. Falcon, the author of "Dartmoor Illustrated"

¹ *Wiltshire Magazine*, vols. iv., pp. 327-9; xvii., pp. 329-31.
² *Journal Anthropological Institute*, November, 1878.

(a book which everybody interested in the monuments should possess), to give two photographic views from the east and west ends. It is a May-year avenue (Az. N. $63^{\circ} 30'$ E., from 25-inch Ordnance map) like the Beckhampton Avenue at Avebury.



FIG. 14.—Assacombe Avenue looking east.

It will be noticed that, like the avenues at Merrivale, the row of stones is furnished at the west end with monoliths larger than ordinary, and that the other end has a well-marked blocking or sighting stone ending the avenue.

I may here refer to yet another May-year avenue which I measured in South Wales. It is near "Arthur's Stone," a famous cromlech in Gower to which I refer elsewhere. The true azimuth is S. 61° E., height of horizon $1^{\circ} 30'$.

There is no doubt, I think, that the "Nine Maidens" near St. Columb, Cornwall, of which a plan is given by Lukis (plate xxxii.), is the remains of a double or multiple avenue. With Lukis's value of the magnetic variation, I found from his plan an azimuth of N. 28° E. I visited them in April, 1907, and assuming a variation of 18° W. (with hill 2°), I got the same value, giving Dec. N. $33^{\circ} 47'$: that of Capella in 1480 B.C.

This is a locality worthy of minute study, especially with reference to the actual commencement of the

avenue, for the true azimuths of the many stones on the E. side of course depend upon this.

This avenue and the fine one at Callernish can be treated together. For the latter the conditions are as follows:—

Azimuth of Avenue.—N. 9° E.; hill, $1^{\circ} 26'$; dec. $32^{\circ} 26'$ N.; Capella, 1720 B.C.

This avenue is associated with a circle 42 feet in diameter, within which is a remarkable chambered cairn referred to elsewhere. The avenue consists of two parallel lines going off to the northward 270 feet in length, and about 27 feet in width. The total number of stones is forty-eight, and the total length of the monument, from the extremity of the double line, through the centre of the circle to the extremity of the single line beyond, is 408 feet.

It will be seen, then, that the more recent measurements give us avenues directed, on the orientation theory, both to sun and stars. The sun is the May sun, and the solar avenues are at Avebury, Assacombe, and Gower.

Of new stellar avenues parallel to others previously shown by the investigations to be aligned on northern clock-stars, we have those at Callernish and St. Columb.

But these are not all.

NORMAN LOCKYER.

THE CALIFORNIAN EARTHQUAKE OF 1906.

ALTHOUGH only twenty months have passed since Central California was devastated and San Francisco destroyed, partly by earthquake but largely by fire, some fifty papers have appeared from technical and other journals describing this great catastrophe. The last appears as a Bulletin (No. 324, Series R, Struc-

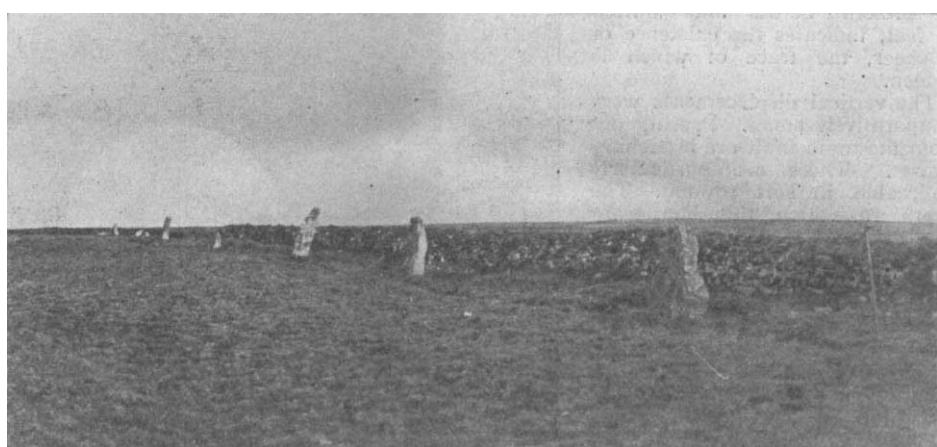


FIG. 15.—The Nine Maidens.

Photo, by Lady Lockyer.

tural Materials, 1) of the U.S. Geological Survey. It is a volume of 158 pp., illustrated by fifty-seven excellent process plates, in addition to which there are two maps. The introduction is by Dr. G. K. Gilbert, and it treats of the earthquake as a natural phenomenon.